

# **OBSERVATIONS OF CEPHEIDS WITH SALT FOR THE ANALYSIS OF METALLICITY GRADIENT AND LOCAL CHEMICAL COMPOSITION HETEROGENEITY IN THE MILKY WAY DISK**

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The problem of radial abundance gradients in spiral galaxies is central in the field of galaxies evolution. For the Galaxy, abundance gradients as observational characteristics of the galactic disk are among the most important input parameters in any theory of galactic chemical evolution. In recent years, great progress has been made on the distribution of abundances across the disk of the Galaxy, but many questions concerning the present-day abundance distribution in the galactic disk, its spatial properties, and evolution with time, remain to be answered.

We started to use the High Resolution Spectrograph (HRS) of the Southern African Large Telescope (SALT) to obtain the high-resolution spectroscopic observations of a sample of Cepheids which we are going to use:

(1) To derive the shape of the abundance gradients in the inner parts of the Milky Way,

(2) To strongly constraint the galactic chemo-dynamical models,

(3) To extract the possible objects belonging to the Population II. We will present first observations, data reduction procedure and results.

**POLARIS: HISTORY OF PULSATIONAL ACTIVITY  
SINCE DISCOVERY.**

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We have analyzed the pulsation activity of small-amplitude Cepheid Alpha UMi (Polaris) during the period of its radial velocity observations. As known during XX century Polaris demonstrated the decreasing of the radial velocity amplitude to the minima at 80<sup>th</sup>. After that amplitude have increased.

Our observations during September-December 2015 (21 spectra) obtained by 81cm telescope TCO with Spectrograph show the radial velocity amplitude comes to 4.16 km/s, and it approximately twice the one found in 2007, and the pulsation period increase up to 8.6 min.